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Five new species of Trichoptera from France, Spain and Turkey (Philopotamidae, Psychomyiidae, Polycentropodidae)

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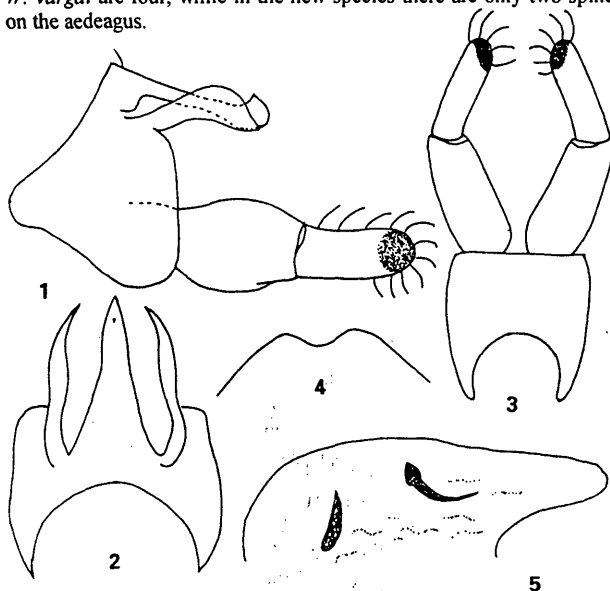
Abstract. Five new species of Trichoptera from France, Spain and Turkey are described and illustrated: *Wormaldia artillac* sp.n. from the Pyrenees (France), *W. gardensis* sp.n. from France, *W. arriba* sp.n. from Cantabria in Spain (Philopotamidae), *Tinodes beysehirensis* sp.n. (Psychomyiidae) from the Toros Mountains in Turkey and *Polycentropus yuecelcaglari* sp.n. (Polycentropodidae) from northeastern Anatolia.

Wormaldia artillac sp.n. (Philopotamidae)

Antennae, maxillary palps and wings brown, legs pale brown. Length of the anterior wing of males 8-8.5 mm. Male genitalia (Figs. 1-5): In dorsal view, tergite 8 is roundly excised on the posterior margin. Sternite 9 is deeply excised ventrally, forming a large and long triangular extension on the anterior margin. Preanal appendages; in lateral view, narrow at the base, roundly dilated on the dorsal edge and acute at the apex; in dorsal view, the apex is pointed and curved slightly inwards. Segment 10 is slightly longer than the preanal appendages, rounded at the apex, with a small projection subdistally; in dorsal view, it is almost triangular in shape. Basal segment of the inferior appendages is round in the middle of the ventral edge, becoming smooth ventroapically; the second segment is broad and broadly rounded at the apex. The aedeagus has two spines.

Holotype male and paratypes 2 males: France, Ariège, Pyrénées, South-west Foix, Arize massif, Artillac brook, 1200 m, 13.3.1995 leg. Vinçon, coll. Sipahiler.

Wormaldia artillac sp.n. is characterized by the shape of segment 9, large preanal appendages, the broad second segment of the inferior appendages and the sclerites spines on the aedeagus. *W. vargai* MALICKY 1981 from the south-eastern Alps differs from the new species by the shape of segment 9, which is rather short and broadly dilated on the anterior margin and the second segment of the inferior appendages, which is broad at the apex. The spines on the aedeagus of *W. vargai* are four, while in the new species there are only two spines on the aedeagus.



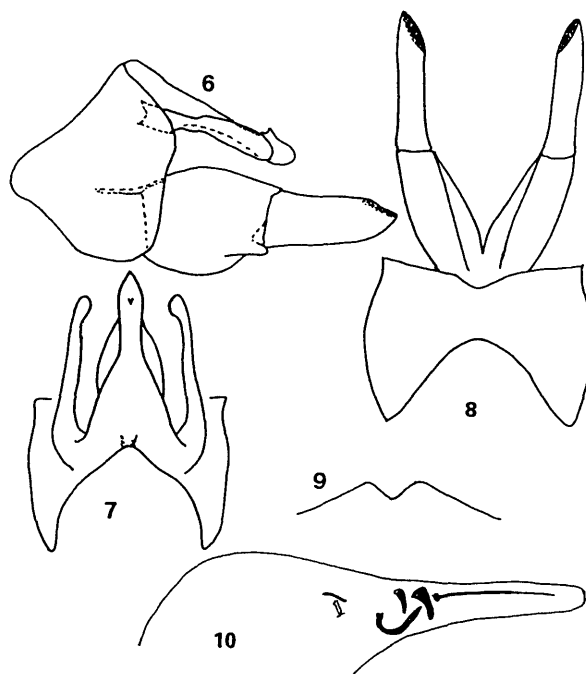
Figs. 1-5: *Wormaldia artillac* sp.n. male genitalia: 1, lateral; 2, dorsal; 3, ventral; 4, tergite 8, dorsal; 5, aedeagus, lateral.

Wormaldia gardensis sp.n. (Philopotamidae)

Antennae, maxillary palps and wings brown. Length of the anterior wing of males 6-6.5 mm, of female 6 mm. Male genitalia (Figs. 6-10): Dorsally, tergite 8 is excised in the middle forming rounded lobes on the sides. Sternite 9 is long, roundly triangular in shape on the sides of the anterior margin. In lateral view, the preanal appendages are almost oval and rounded at the apex. In dorsal view, the preanal appendages are rounded on the inner surface. Segment 10, in dorsal view, is narrower subdistally and triangular in shape at the tip. In lateral view, the first segment of the inferior appendages is dilated both on ventral and dorsal margins; the second segment of the inferior appendages is pointed at the apex; there is a small depression on the dorsoapical margin. The spines of the aedeagus are variable: the holotype has a curved spine, a very long and thin spine and two small spines; the paratype has three spines, which are almost equal in length.

Holotype male and paratype male: France, Gard, Aigoual mountain, west St-André de Valborgne, 24.5.1995 leg. Vinçon, coll. Sipahiler.

Wormaldia gardensis sp.n. is well characterized by the shape of the male genitalia, especially of the second segment of the inferior appendages, which is pointed towards the apex and the subdistal part of is slightly depressed dorsoapically. The rounded apex of the preanal appendages separates the new species from other species of the genus *Wormaldia*. Close relationship is not evident.



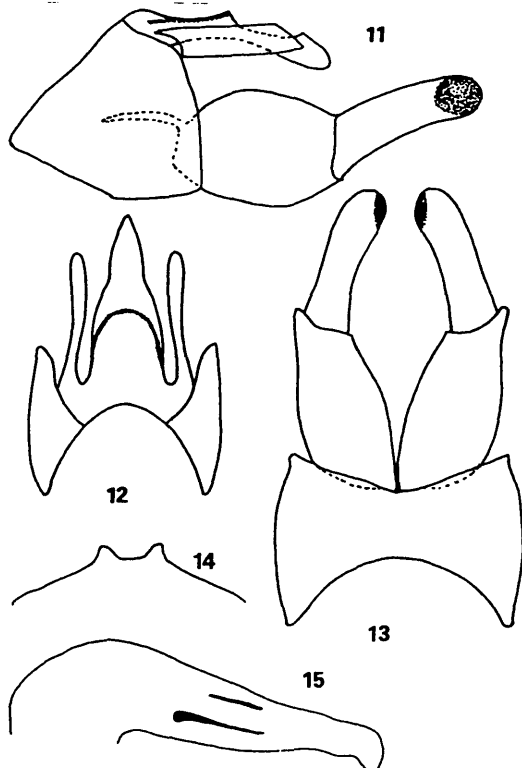
Figs. 6-10: *Wormaldia gardensis* sp.n. male genitalia: 6, lateral; 7, dorsal; 8, ventral; 9, tergite 8, dorsal; 10, aedeagus, lateral.

Wormaldia arriba sp.n. (Philopotamidae)

Antennae, palps, legs and wings brown. Length of the anterior wing of males 4.5-5 mm. Male genitalia (Figs. 11-15): in dorsal view, the anterior margin of tergite 8 is excised in the middle, forming triangular projections on the sides. Sternite 9 is long, triangular in shape on the sides. Preanal appendages are shorter than segment 10, dorsal and ventral margins are almost parallel to each other; in lateral view, the apex is obliquely truncated and pointed at the apex. In dorsal view, segment 10 has a rounded sclerotized ridge, beginning from the sides of the base; in lateral view, segment 10 is excised on the median part and forms an acute projection anteriorly; subdistal projection is small. The second segment of the inferior appendages is rounded at the apex; in lateral view, slightly curved ventrad. The aedeagus has two spines.

Holotype male and paratypes (6 males): Spain, Asturias, Cordillera Cantabrica, Puerto de Leitariegos, Brabas de Arriba, 15.3.1995; paratype: Spain, Cordillera Cantabrica, Pakada, 30.11.1997, 1 male, leg. Vinçon, coll. Sipahiler

Wormaldia arriba sp.n. is well characterized by the shape of segment 10, with the dorsal sclerotized ridge. It is related to *W. variegata mattheyi* SCHMID, 1952 (MALICKY 1983) differing in the male genitalia, especially in the shape of segment 10, which has no sclerotized ridge. Differences in the shape of sternite 9 are also evident: in *W. v. mattheyi* sternite 9 is short on the sides, while *W. arriba* sp.n. it is long, broadly triangular in shape. The aedeagus possesses three long spines in the related species, but in *W. arriba* sp.n. there are only two spines in the aedeagus.



Figs. 11-15: *Wormaldia arriba* sp.n. male genitalia: 11, lateral; 12, dorsal; 13, ventral; 14, tergite 8, dorsal; 15, aedeagus, lateral.

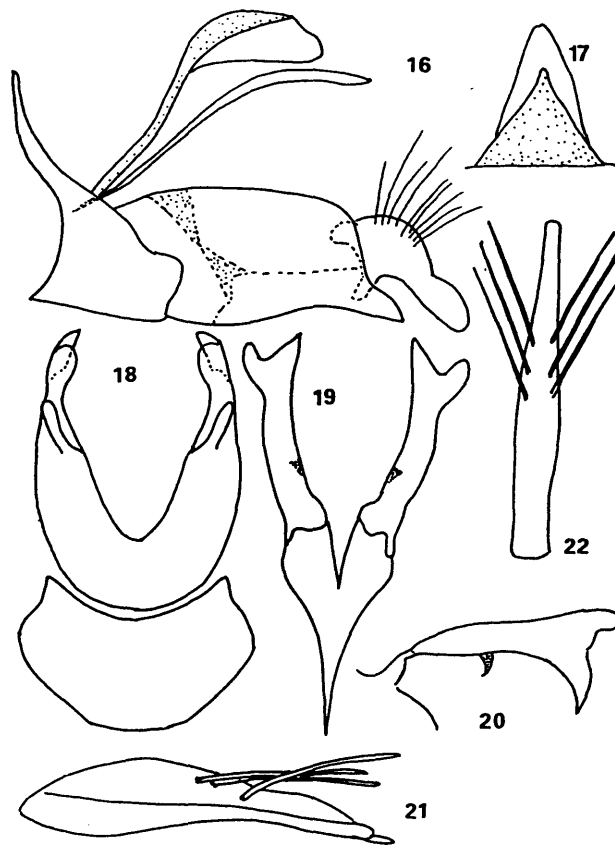
Tinodes beysehirensis sp.n. (Psychomyiidae)

Maxillary palpi and wings pale brown; antennae, legs and body whitish yellow. Length of the anterior wing of males 4.5-5 mm, of females 5.5-6 mm. Male genitalia (Figs. 16-22): In dorsal view, tergite 9 is triangular in shape; sternite 9 is prolonged dorsally; the ventral part is broad and the anterior margin is roundly excised; posterior margin protrudes as a triangular projection on the ventral half. Preanal appendages are long and slender. In lateral view, the coxopodite of the inferior appendages is long and protrudes as a triangular projection on the ventral part of the posterior margin; harpago is curved ventrally; with blunt apex dorsal margin is sinuate. Inner basal appendage is rather short; narrow at the base and dilated towards the apical edge, forming a rounded lobe dorsally and a curved triangular projection ventrally; there is a small triangular projection in the middle of the ventral edge. Aedeagus is long, cylindrical, becoming narrower towards the apex, with three long spines, locating medially.

Holotype male: Turkey, Konya, Beyşehir, 17 km west of Kurucuova, direction Sütçüler, Toros Mountains, 1350 m, 21.7.1998, leg. and coll. Sipahiler.

Tinodes beysehirensis sp.n. is characterized by the shape of the genitalia, especially the inferior appendages and the inner basal appendages. It is somewhat related to *T. kadiella* BOTOSANEANU & GASITH, 1971 (BOTOSANEANU & GASITH, 1971) by the shape of the

inner basal appendages, which are also dilated at the apex, forming a rounded lobe dorsally and pointed projection ventrally, but broad on the basal and median parts; in *T. beysehirensis* sp.n. it is narrow at the base and median part, possessing on the ventral edge a pointed projection. In *T. kadiella*, the shape of the inferior appendages is simple and without a ventral projection on the apical part of the ventral edge; in the new species, the harpago of the inferior appendages is sinuate on the dorsal edge, curving ventrally. Differences in the other parts of the genitalia are also evident.



Figs. 16-22: *Tinodes beysehirensis* sp.n. male genitalia: 16, lateral; 17, dorsal; 18, ventral; 19, inner basal appendage, dorsal; 20, inner basal appendage, lateral; 21, aedeagus, lateral; 22, aedeagus, dorsal.

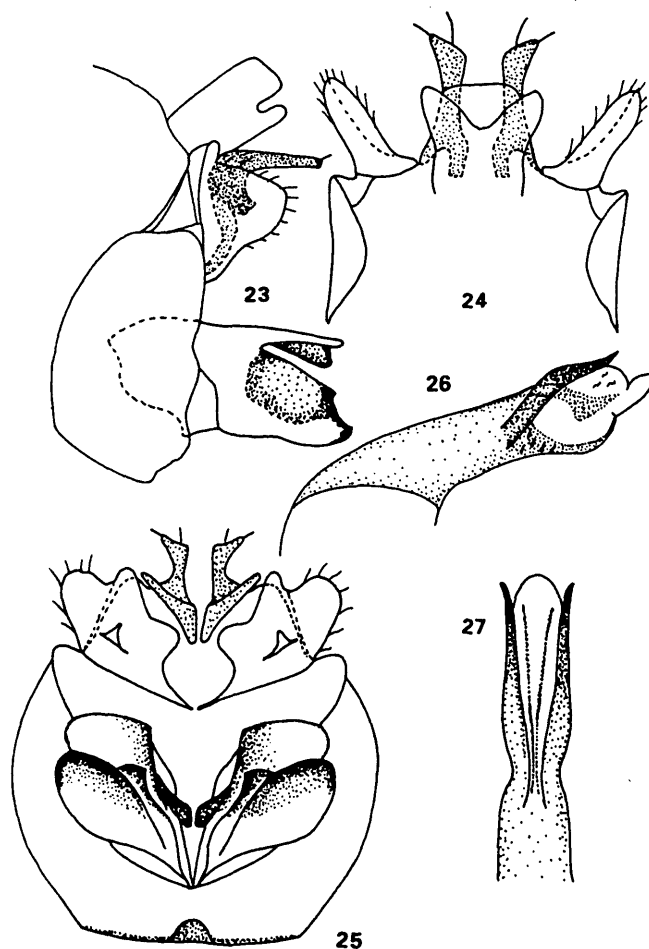
Polycentropus yuecelcaglari sp.n. (Polycentropodidae)

Antennae and legs yellowish; wings pale brown; anterior wing spotted; length of the anterior wing 7.5 mm. Male genitalia (Figs. 23-27): Segment 9 is broadly dilated on the anterior margin; in dorsal view, dorsal lobe of segment 10 V-shaped excised medially; apical margin of the ventral lobe is smooth. The preanal appendages are long; in lateral view, they are almost triangular in shape, dilating on the ventral margin; in dorsal view they are convergent and oval; in caudal view, each possesses a triangular lobe on the inner surface. In dorsal view, the intermediate appendages are broad at the base, somewhat narrowed in the middle and directed on the sides forming triangle at the apex; in lateral view, they are straight narrowing towards the apex; there is one spine at the apex and one spine located subdistally. In lateral view, the dorsal and ventral lobes of the inferior appendages are almost equal in length; ventral lobe is narrowed towards the apex; the posterior margin is excised forming pointed projections dorsally and ventrally. The aedeagus is cylindrical and mainly sclerotized; the distal part is membranous, with a Y-shaped thin sclerite in it; in dorsal view; the parameres are as long as the aedeagus; located on the sides and pointed at the apex; in lateral view, they are directed dorsally at the base, somewhat curving in the middle.

Holotype male: Turkey, Artvin, Borçka, Camili, Karchal mountains, Didrele spring, 1050 m, (at light), 5.8.1995, leg and coll. Sipahiler.

Polycentropus yuecelcaglari sp.n. is closely related to *P. segregatus* MEY, 1982 described from the Caucasus. The following differences are seen in the male genitalia: In *P. segregatus* the preanal appendages are rather short and triangular in shape, while in *P. yuecelcaglari* sp.n. they are long and broadly triangular in shape; the intermediate appendages of *P. segregatus* are narrow at the base and rounded at the tips, curving ventrad in lateral view; in the new species they are broad at the base, triangular in shape at the tips and straight in lateral view; in *P. segregatus* the upper lobe of the inferior appendages is shorter than the ventral lobe, of which the ventral margin is roundly dilated ventrally; in *P. yuecelcaglari* sp.n. the upper lobe is as long as the ventral lobe, which is narrowed towards the apical margin, forming two projections dorsally and ventrally. The aedeagus of *P. segregatus* has broad a Y-shaped sclerite; the parameres are shorter than the aedeagus, arising in the middle of the aedeagus; they are directed ventrad at the base, curved in the middle and directing towards dorsal at the apex; in *P. yuecelcaglari* sp.n. Y-shaped sclerite of the aedeagus is long and thin; the parameres are as long as the aedeagus, arising almost subdistally; they are directed dorsad at the base and curved in the middle, directed posteriorly at the apex.

Polycentropus yuecelcaglari sp.n. is dedicated to Univ.-Doz. Dr. Yücel Çaglar, the president of RAREF (The Research Association Rural Environment and Forestry), who kindly facilitated field work in Borçka, Camili (Macahel) that led to the discovery of this fine species.



Figs. 23-27: *Polycentropus yuecelcaglari* sp.n. male genitalia: 23, lateral; 24, dorsal; 25, caudal; 26, aedeagus and parameres, lateral; 27, aedeagus and parameres, dorsal.

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Book Review

Atlas der Pflanzen und Tiere im Baltischen Bernstein. By Wolfgang Weitschat and Wilfried Wichard. 256 pages, hardbound, ISBN 3-931516-45-8. DM 128.-. Verlag Dr.Friedrich Pfeil, München. [Atlas of plants and animals in Baltic Amber]

In the general part, there is a definition of amber, a survey of deposits and a discussion on the origin and age of ambers. The distribution of Baltic Amber, including Saxonian and Ukrainian ambers, is given. They have probably the same origin according to their animal fossils which are probably of Eocene origin. One chapter discusses the problems of fossilisation in amber. In the special part, characteristic members of all groups of plants and animals occurring in amber are depicted in excellent colour photographs with comments in an introductory text, beginning with Pteridophyta and ending with mammals. This part has more than 180 pages, and over 130 of them are devoted to insects. The volume ends with 20 pages of literature references and an index.

The book gives a good survey of present knowledge of amber flora and fauna with beautiful photographs and concise text of heuristic value, but it does not go much into detail. Readers who need more details are referred to the literature. Trichoptera are figured in 14 photographs. It is known from Ulmer's book of 1912 that caddis are richly represented in amber fossils, compared with the total number of fossils: 5,6% of the inclusions are Trichoptera of which 177 species are now known in Baltic Amber. With the exception of Stenopsychidae all families are still living in Europe, and with the exception of Limnephilidae and Thremmatidae, all recent European families were also found in Baltic Amber. Considering the fact that our recent European fauna includes a number of Tertiary relicts (although not necessarily from the same period as Baltic Amber), the Amber fauna and the recent European fauna are not so different as one might expect for the millions of years between. More than one third of the genera are the same, but nothing is in common at species level.

It is a beautiful and informative book for those who expect a modern introduction of high quality. Those who do not understand the German text will still enjoy the fine illustrations. The price is moderate considering the quality of the book and the more than 600 colour photographs.

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